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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,770	06/21/2006	Masashi Hashimoto	03500.119746.	5898

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FITZPATRICK CELLA HARPER & SCINTO  
1290 Avenue of the Americas  
NEW YORK, NY 10104-3800

EXAMINER
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BOHATY, ANDREW K

ART UNIT	PAPER NUMBER
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1786

MAIL DATE	DELIVERY MODE
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07/16/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/583,770	<b>Applicant(s)</b> HASHIMOTO ET AL.	
	<b>Examiner</b> Andrew K. Bohaty	<b>Art Unit</b> 1786	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 10 June 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 12, 14-16, 21 and 22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12, 14-16, 21 and 22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. This Office action is in response to the amendment filed June 10, 2010, which amends claims 12 and 14-16. Claims 12, 14-16, 21, and 22 are pending.

#### ***Response to Amendment***

2. The applicant's arguments, filed June 10, 2010, caused the withdrawal of the rejections of claims 12, 14-16, and 22 under 35 U.S.C. 103(a) as being unpatentable over Robello et al. (US 2005/0123787) in view of Iwawaki et al. (US 2005/0276994) as set forth in the Office action mailed March 10, 2010.

#### ***Response to Arguments***

3. Applicant's arguments, see pages 4 and 5, filed June 10, 2010, with respect to 12, 14-16, and 22 rejected under 35 U.S.C. 103(a) as being unpatentable over Robello et al. (US 2005/0123787) in view of Iwawaki et al. (US 2005/0276994) have been fully considered and are persuasive. The rejection under 35 U.S.C. 103(a) as being unpatentable over Robello et al. (US 2005/0123787) in view of Iwawaki et al. (US 2005/0276994) of claims 12, 14-16, and 22 has been withdrawn.

4. Applicant's arguments filed June 10, 2010, which respect to claims 12, 14-16, and 22 rejected under 35 U.S.C. 103(a) as being unpatentable over Robello et al. (US 2005/0123787) in view of Suzuki et al. (WO 2004/020372) and Sudhakar et al. (J. Am. Chem. Soc. 2003, 125, 7796-7797) have been fully considered but they are not persuasive.

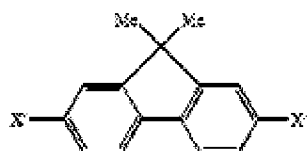
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5. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

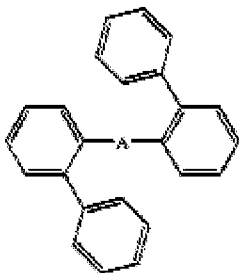
6. In response to applicant's argument that Robello in view of Suzuki and Sudhakar, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

7. Robello teaches the following formula, X'-A-X'' (formula (1), paragraphs [0011]-[0012]), where A and X' and X'' have a limited number of choices (paragraphs [0018]-

[0020]), which includes



as the A component and



as the X' and X'' components. Robello teaches the host materials

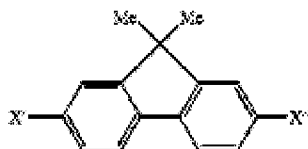
having that fall under the limitations of formula (1) will provide improved efficiency, stability, and spectral characteristics of electroluminescent devices (paragraph [0010]).

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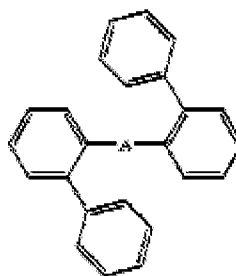
8. Suzuki teaches the host material is a fluorene containing material where the number of consecutive fluorene units found in the material is preferably 1 to 3 (page 4 line 15 through page 5 line 25). Suzuki teaches that the fluorene compounds can be used as host materials for phosphorescent materials (examples 78-87). Furthermore, Suzuki teaches that terminal ends of the fluorene groups can be substituted with aryl group. Suzuki teaches that these fluorene host materials can be used to make organic electroluminescent devices with high efficiency and high luminance (page 4 lines 4-8).

9. Sudhakar teaches the number of consecutive fluorene units changes the triplet energy of host materials that use fluorene units (page 7797 left column last paragraph). Sudhakar teaches that the more consecutive fluorene units the low the triplet energy or band gap of the material (page 7797 left column last paragraph). Sudhakar teaches that host materials that have three consecutive fluorene units can be used as a successful host material for red phosphorescent materials (page 7797 right column first paragraph). Sudhakar teaches that these materials are not good host for phosphorescent materials with higher energy levels because of the possible of phosphorescent quenching from the low energy triplet state of the host material (page 7797 right column first paragraph).

10. Given the teaching of Robello, Suzuki, and Sudhakar, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select



as the A component, where the number of fluorene units



connected to one another is three, and select as the X' and X'' components to produce a material that corresponds to applicant's formula I. Robello teaches fluorene as a group that corresponds to A and biphenyl as a group for X' and X'' in Robello's formula (1) and Suzuki teaches that the number of fluorene units found in a host material is preferably from 1 to 3. Sudhakar teaches that fluorene host materials that contain three consecutive fluorene units can be used as host materials for red phosphorescent material, but not phosphorescent dopants with higher energy. The motivation would have been provide a host material that can be used with efficiently with red phosphorescent dopants and can be used to make organic electroluminescent device with high efficiency and high luminance.

11. Also, Suzuki teaches linear fluorene trimers (compound 7).

12. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the importance of maintaining a temperature difference of the glass transition temperature and the re-crystallization temperature) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

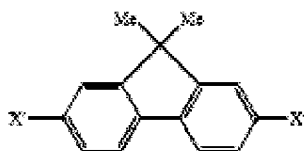
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

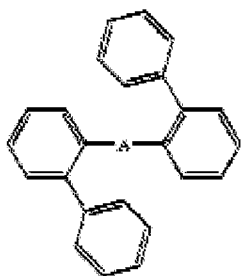
15. Claims 12, 14-16, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robello et al. (US 2005/0123787) (hereafter "Robello") in view of Suzuki et al. (WO 2004/020372) (hereafter "Suzuki") and Sudhakar et al. (J. Am. Chem. Soc. 2003, 125, 7796-7797) (hereafter "Sudhakar").

16. Regarding claim 12, Robello teaches the following formula, X'-A-X" (formula (1), paragraphs [0011]-[0012]), where A and X' and X" have a limited number of choices



(paragraphs [0018]-[0020]), which includes

as the A



component and as the X' and X'' components. Robello teaches the host materials having that fall under the limitations of formula (1) will provide improved efficiency, stability, and spectral characteristics of electroluminescent devices (paragraph [0010]).

17. Robello does not teach that A can be three consecutive fluorene units.

18. Suzuki teaches an organic electroluminescent device comprising a light emitting layer, where the light emitting layer comprises a host material and a light emitting dopant (page 15 line 20 through page 16 line 25). Suzuki teaches the host material is a fluorene containing material where the number of consecutive fluorene units found in the material is preferably 1 to 3 (page 4 line 15 through page 5 line 25). Suzuki teaches that the fluorene compounds can be used as host materials for phosphorescent materials (examples 78-87). Suzuki teaches that these fluorene host materials can be used to make organic electroluminescent devices with high efficiency and high luminance (page 4 lines 4-8).

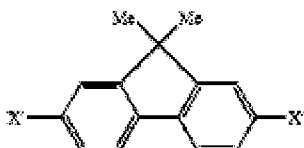
19. Sudhakar teaches the number of consecutive fluorene units changes the triplet energy of host materials that use fluorene units (page 7797 left column last paragraph). Sudhakar teaches that the more consecutive fluorene units the low the triplet energy or band gap of the material (page 7797 left column last paragraph). Sudhakar teaches that host materials that have three consecutive fluorene units can be used as a



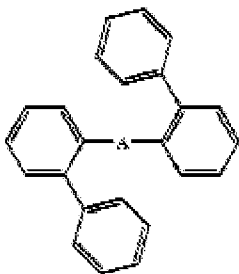
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successful host material for red phosphorescent materials (page 7797 right column first paragraph). Sudhakar teaches that these materials are not good host for phosphorescent materials with higher energy levels because of the possible of phosphorescent quenching from the low energy triplet state of the host material (page 7797 right column first paragraph).

20. It would have been obvious to one of ordinary skill in the art at the time the



invention was made to select as the A component, where the number of fluorene units connected to one another is three, and select



as the X' and X'' components to produce a material that corresponds to applicant's formula I. Robello teaches fluorene as a group that corresponds to A and biphenyl as a group for X' and X'' in Robello's formula (1) and Suzuki teaches that the number of fluorene units found in a host material is preferably from 1 to 3. Sudhakar teaches that fluorene host materials that contain three consecutive fluorene units can be used as host materials for red phosphorescent material, but not phosphorescent dopants with higher energy. The motivation would have been provide a host material that can be used with efficiently with red

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phosphorescent dopants and can be used to make organic electroluminescent device with high efficiency and high luminance.

21. Regarding claims 14-16 and 22, Robello teaches an electroluminescent device comprising an anode and a cathode where there is a light emitting layer between the anode and cathode (paragraph [0011]). Further the light emitting layer comprises a host material and a phosphorescent dopant and the host material has a compound of formula (1) from paragraph 15 above (paragraph [0011]). Robello teaches the phosphorescent dopant can be a red phosphorescent material (paragraph [0027]).

22. Claim 21 rejected under 35 U.S.C. 103(a) as being unpatentable over Robello et al. (US 2005/0123787) (hereafter "Robello") in view of Suzuki et al. (WO 2004/020372) (hereafter "Suzuki") and Sudhakar et al. (J. Am. Chem. Soc. 2003, 125, 7796-7797) (hereafter "Sudhakar") as applied to claims 12, 14-16, and 22, further in view of Kamatani et al. (US 2003/0189216) (hereafter "Kamatani").

23. Regarding claim 21, Robello in view of Suzuki and Sudhakar does not teach the use of the electroluminescent device in a display apparatus.

24. Kamatani teaches that a display apparatus comprising an organic electroluminescent device (paragraphs [0108]-[0121]) to provide a lightweight flat-panel display with energy saving performance and high visibility (paragraph [0113]).

25. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the electroluminescent device, of Robello in view of Suzuki and Sudhakar, to be contained in a display apparatus. The motivation would be

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to provide a lightweight flat-panel display with energy saving performance and high visibility.

### ***Conclusion***

26. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

27. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew K. Bohaty whose telephone number is (571)270-1148. The examiner can normally be reached on Monday through Thursday 7:30 am to 5:00 pm EST and every other Friday from 7:30 am to 4 pm EST.

29. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Lawrence Tarazano can be reached on (571)272-1515. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

30. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. K. B./  
Andrew K. Bohaty  
Patent Examiner, Art Unit 1786

/D. Lawrence Tarazano/  
Supervisory Patent Examiner, Art Unit 1786